

FIG. 1  
(PRIOR ART)

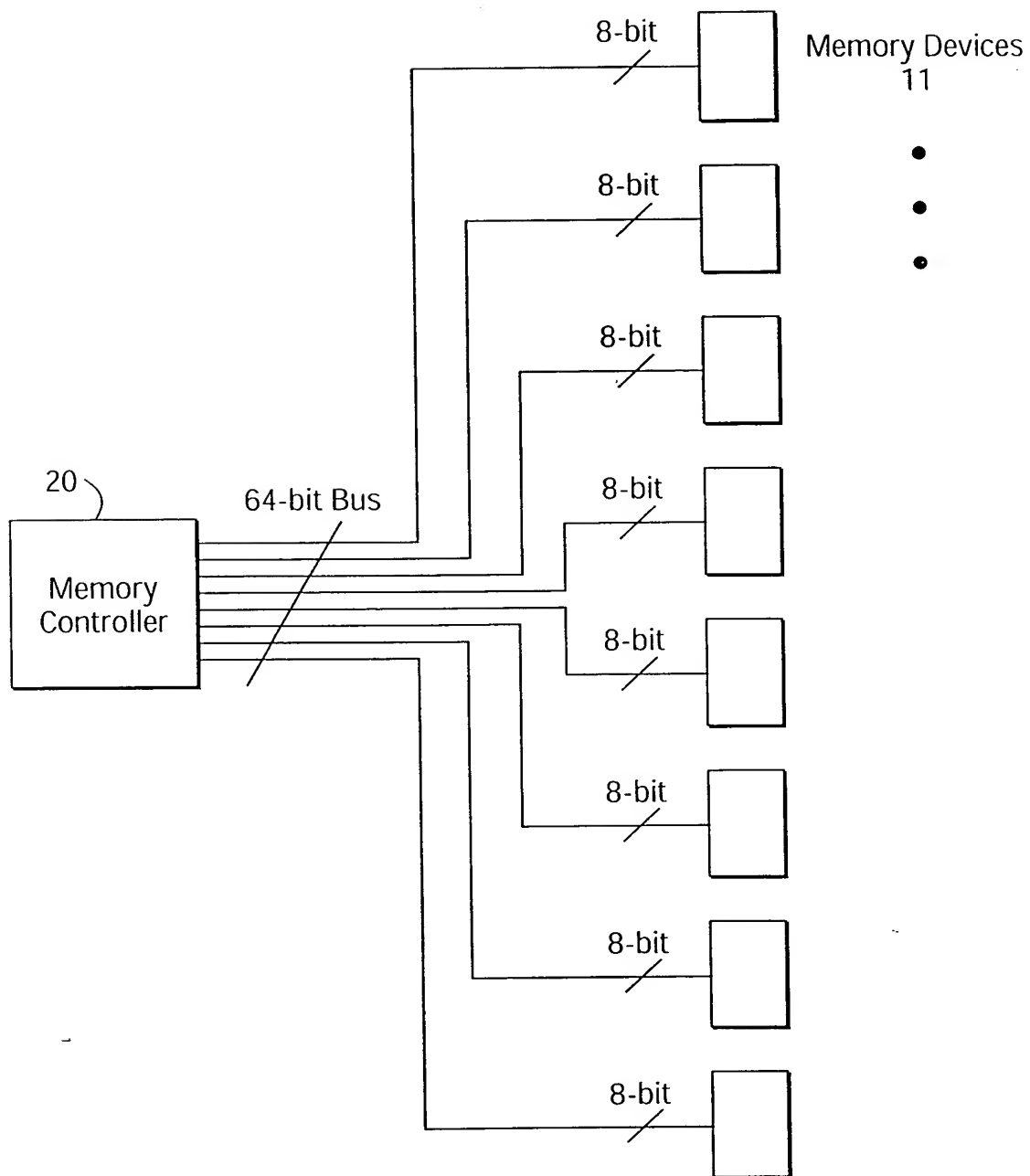


FIG. 2  
(PRIOR ART)

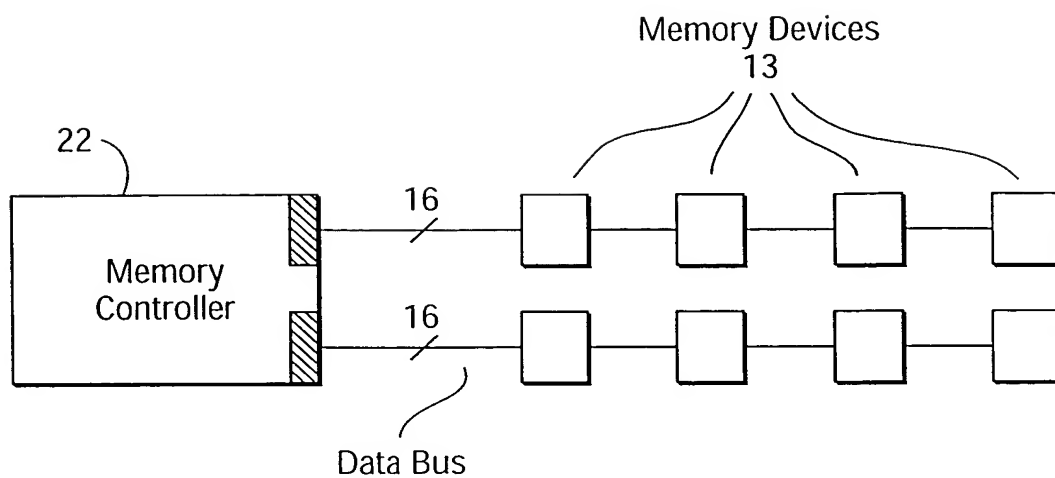


FIG. 3

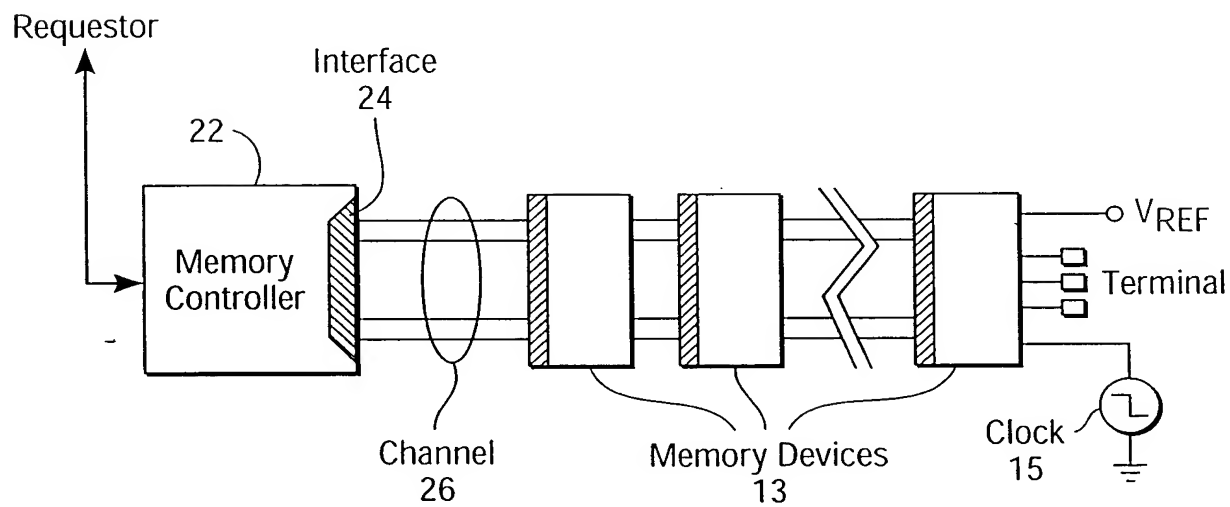


FIG. 4

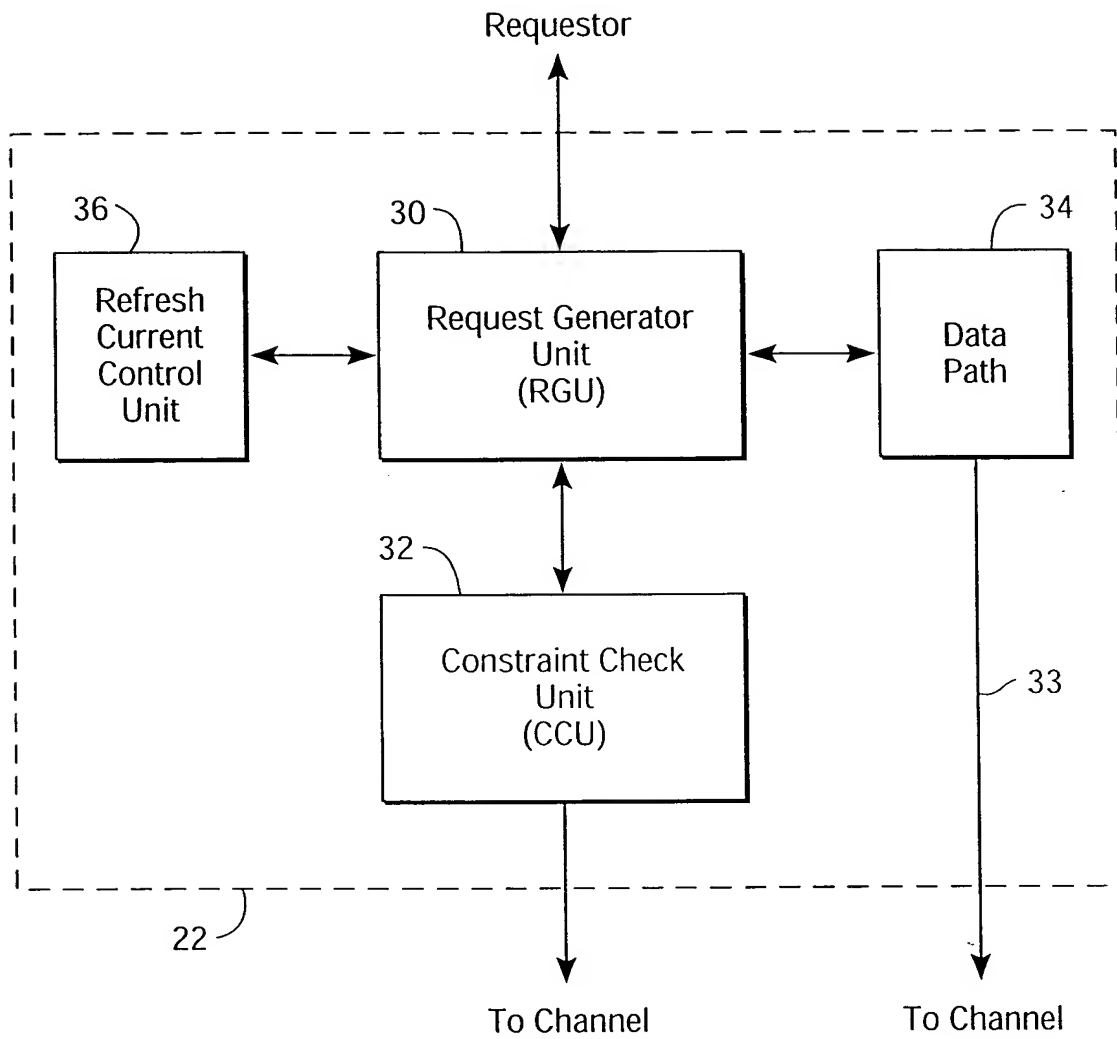


FIG. 5

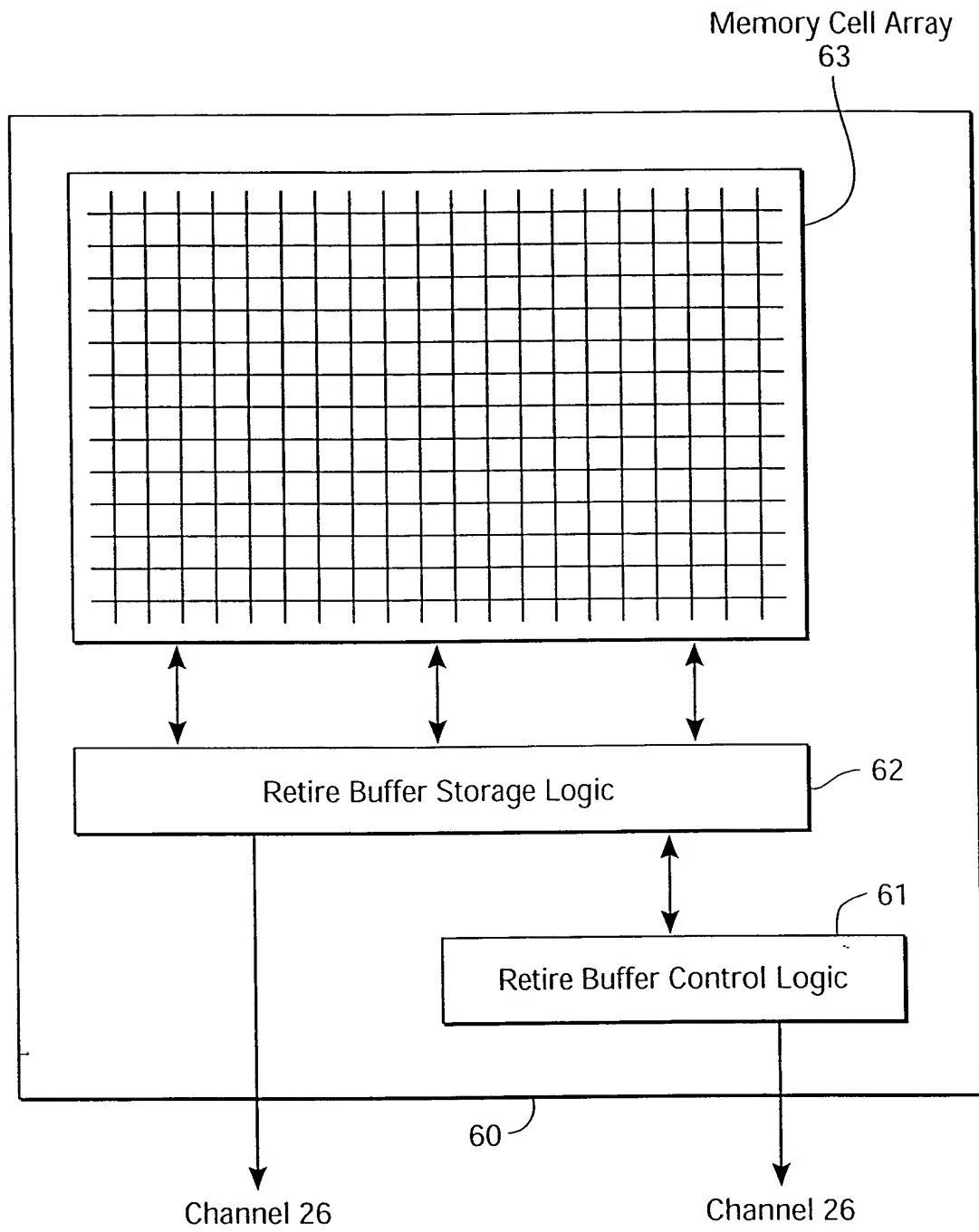


FIG. 6

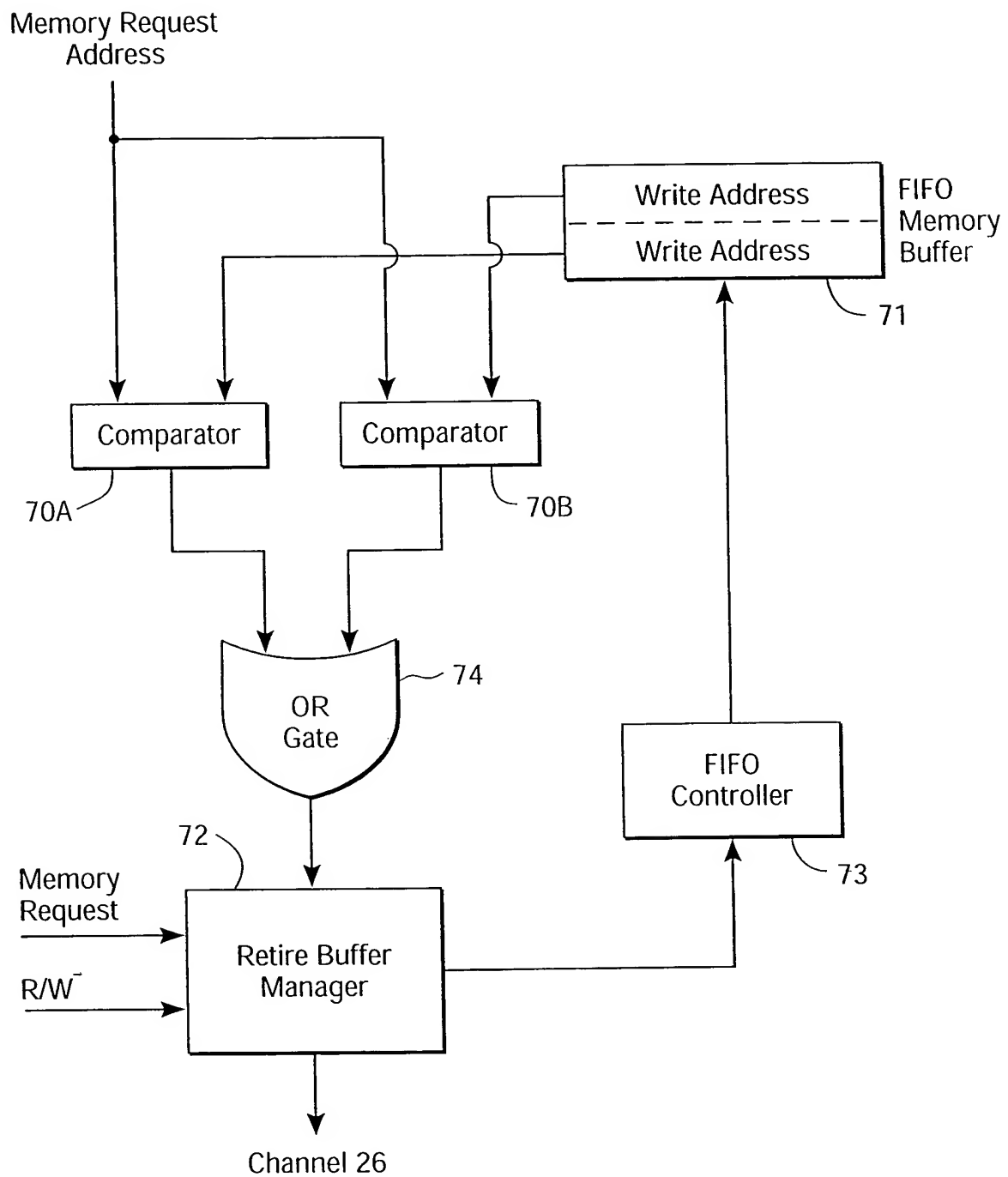


FIG. 7

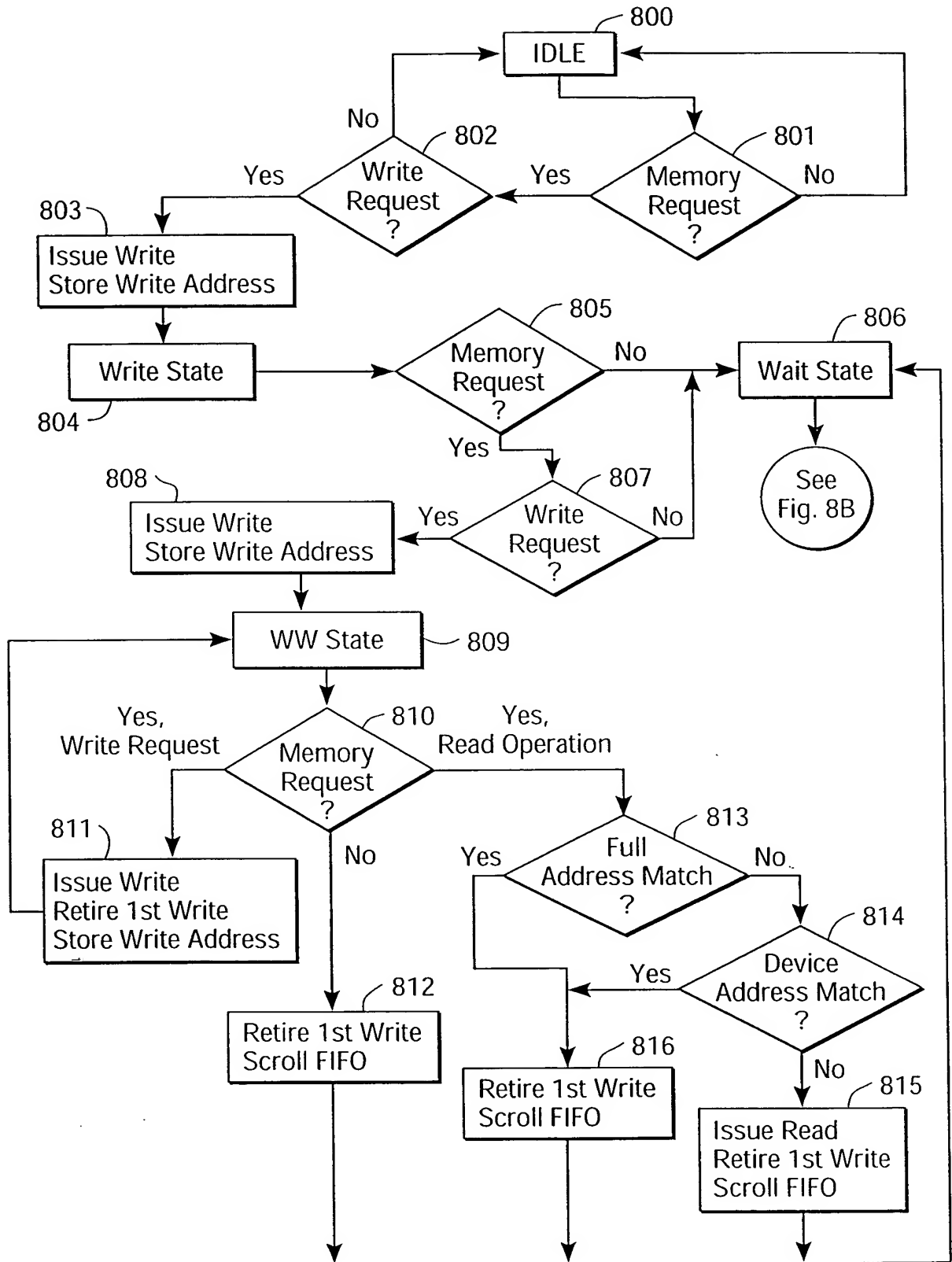


FIG. 8A

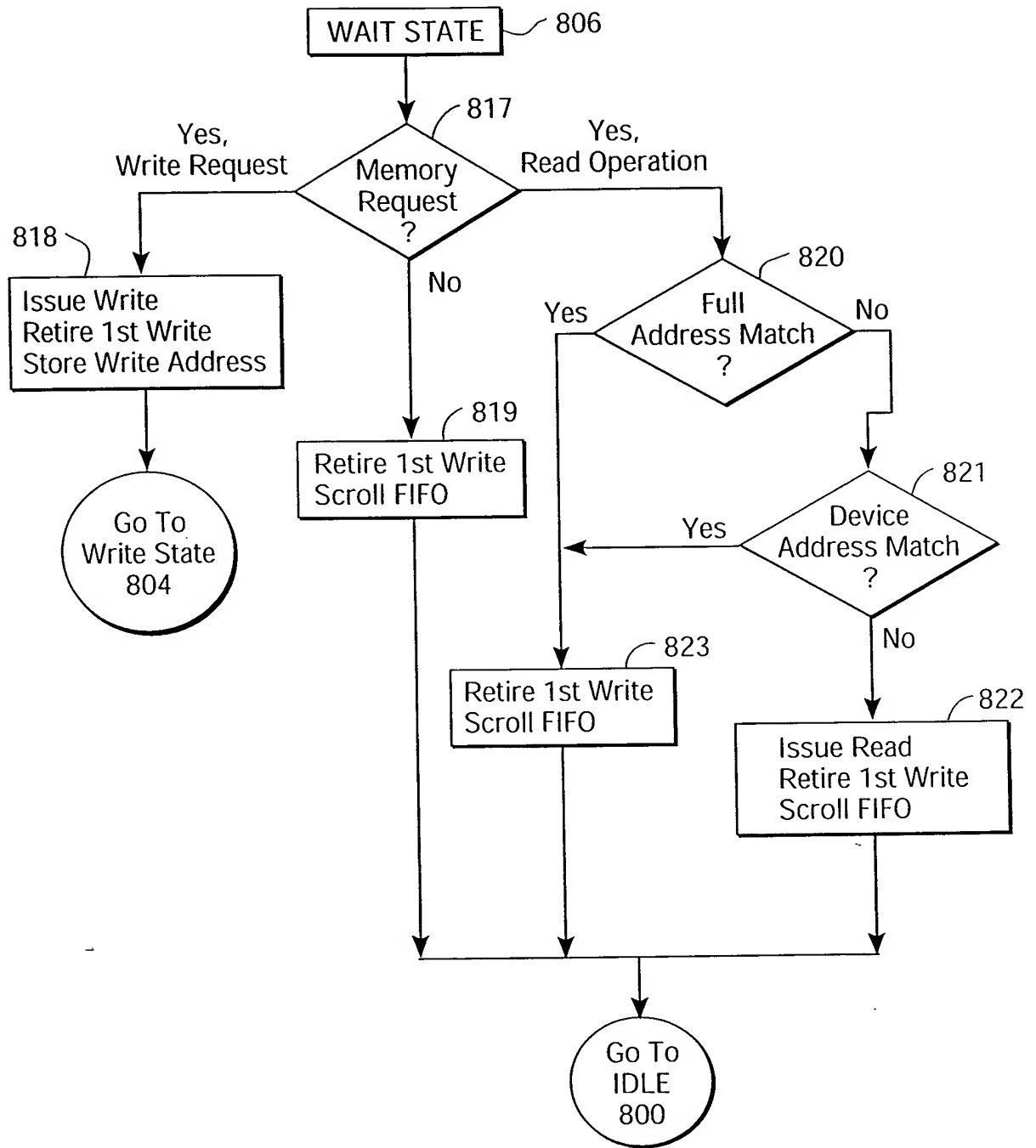


FIG. 8B



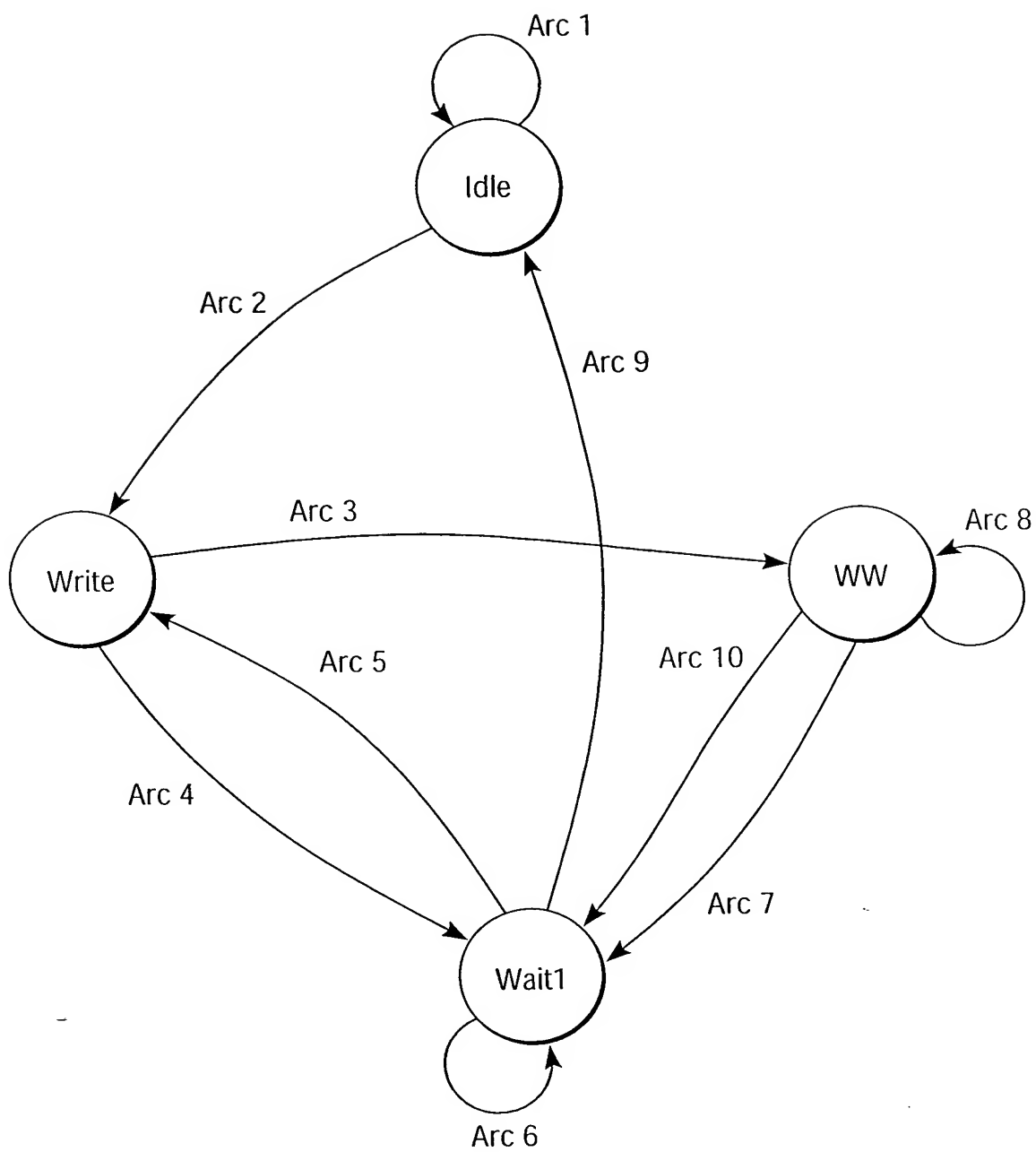


FIG. 9

### State Machine Description

Old State	Arc	Input Conditions	Output Action Taken	New State
Idle	1	Any Non-Write Request	None	Idle
Idle	2	Write Request	Issue Write Request	Write
Write	3	Write Request	Issue Write Request	WW
Write	4	No Request or Read Request	No Action	Wait1
Wait1	5	Write Request	Issue Current Write Request and Retire the Pending Write	Write
Wait1	6	Read Request to Location Having a Pending Retire Operation	1) Return Data Directly from Write Data Buffer in Memory Controller, or 2) Stall the Read Request, and Issue a Retire Request	Wait1
Wait1	9	Read Request to a Different Location, or No Request	Issue Current Read Request and Retire the Pending Write	Idle
WW	7	No Request, or Read Request to Different Location	Issue Current Request and Issue a NOP to Retire First Pending Write	Wait1
WW	10	Read Request to Location Having a Pending Retire Operation	Issue NOP and Retire First Pending Write	Wait1
WW	8	Write Request	Issue Current Write and Retire First Pending Write	WW

FIG. 10